

REMARKS/ARGUMENTS

Claims 1-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0185217 (Ganti et al.) in view of U.S. Patent Application Publication No. 2003/0067880 (Chiruvolu).

Reconsideration of the rejections is respectfully requested.

Claim 1 is directed to a method for operating a node in a label switched network and includes receiving a request to establish a proposed LSP (label switched path) through the node and determining that a bandwidth requirement of the proposed LSP cannot be currently met. After receiving a request and prior to expiration of a time period, information is received from one or more downstream nodes along the proposed LSP identifying one or more currently configured LSPs that have been preempted downstream. After expiration of the time period, one or more LSPs are selected to preempt from among currently configured LSPs. The selection is based at least in part on the received information.

Ganti et al. disclose a label distribution protocol supporting multiple classes of service in a MPLS network. The protocol is used in establishing an LSP to carry traffic of more than one class of service on the same LSP.

Ganti et al. do not show or suggest receiving information from a downstream node identifying a currently configured LSP that has been preempted downstream. In rejecting the claim, the Examiner refers to a description in the Background of the Invention of Ganti et al. of conventional MPLS networks (paragraphs 13-20). The Background describes two distinct LSPs 50, 58 carrying different classes of traffic (Fig. 2). Paragraph [0019] describes how an LSP with high priority can supersede a low priority connection due to lack of resources. Paragraph [0020] describes how an Interior Gateway Protocol (IGP) advertises per-link, per-preemption priority allocated bandwidth. The Examiner also cites paragraph [0078] of Ganti et al. This section

describes how class and pre-emption priority are independent so that a service provider can set the preemption level based on considerations other than class. There is no teaching of receiving information from a downstream node identifying LSPs that have been preempted downstream.

Furthermore, Ganti et al. do not show or suggest selecting one or more LSPs to preempt based on LSPs that have been preempted downstream. In contrast to applicants' invention, Ganti et al. maintain bandwidth usage per Diffserv scheduling class and compare a LSPs requested traffic profiles against the bandwidth at each node. In rejecting the claims, the Examiner refers to claim 12 of Ganti et al., which describes the selection of policing parameters for each class of an LSP according to a traffic profile for the LSP. There is no teaching of selecting an LSP to preempt based on LSPs that have been preempted downstream.

Conventional preemption techniques, such as described in Ganti et al., have a number of drawbacks. Since each preempting node independently determines which lower priority LSP to preempt, more bandwidth may be preempted than necessary. Also, since a larger number of preempted LSPs than is necessary require rerouting, there is an undue signaling burden.

As noted by the Examiner, Ganti et al. also fail to disclose a time period for waiting until selecting an LSP for preemption.

The Chiruvolu patent application is directed to a system for routing stability-based integrated traffic engineering for optical networks. In order to be eligible for rerouting in the system, a low priority traffic trunk must not have been rerouted within a predetermined preceding time period (e.g., reroute timer must be expired). When a low traffic trunk is rerouted, the reroute timer is set, so that it cannot be re-routed until the timer expires (paragraph [0028]).

Chiruvolu do not teach a time to period to wait before selecting a label switched path to preempt. The reroute timer prevents another rerouting of a trunk until the timer expires and may be set for one hour, for example (paragraph [0028]). In contrast to

Chiruvolu. Applicant's invention uses a time period during which the node can learn of preemption decisions made downstream along the proposed LSP. The time period may be set based on the number of hops between the node and a destination of the proposed LSP, for example. The timer is not used to prevent a number of reroutes in a short period of time, as does the timer in Chiruvolu. The time period set forth in the claims would obviously not be set for an hour, as is the reroute timer in Chiruvolu.

Applicants' invention, as set forth in the claims, is particularly advantageous in that it provides for coordination of distributed preemption decisions. This reduces the number of LSPs and volume of traffic that needs to be preempted to accommodate a given level of higher priority traffic. Since fewer LSPs are preempted, signaling associated with rerouting is reduced.

Accordingly, claim 1 is submitted as patentable over Ganti et al. and Chiruvolu.

Claims 6, 11, and 16 are computer program product and apparatus claims, generally corresponding to claim 1, and are also submitted as patentable for the reasons discussed above.

Claims 2-5, depending from claim 1, claims 7-10, depending from claim 6, claims 12-15, depending from claim 11, and claims 17-20, depending from claim 16, are submitted as patentable for at least the same reasons as their base independent claims.

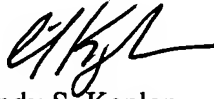
Claims 2, 7, 12, and 17 are further submitted as patentable over the cited references which do not disclose determining a time period responsive to a number of hops between the node and a destination of the proposed LSP. As described above, the timer of Chervil is set to prevent a number of reroutes within a specified time period. The reroute timer is not related to a number of hops between a node and a destination of a proposed LSP.

Regarding claims 3, 8, 13, and 18, neither Ganti et al. nor Chiruvolu show or suggest sending a message indicating acceptance of a proposed LSP prior to expiration of a time period.

As described above, Ganti et al. do not send or receive information identifying LSPs that have been preempted downstream. Therefore, selection of an LSP to preempt cannot favor an LSP that has been preempted downstream, as set forth in claims 4, 9, 14, and 19.

For the foregoing reasons, Applicants believe that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'C. Kaplan', with a stylized flourish at the end.

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